

REMARKS

Applicants thank the Examiner for the courtesy extended to Applicants' attorney and Applicants' assignee's representative, during the interview held May 24, 2006, in the above-identified application. During the interview, Applicants' attorney explained the presently-claimed invention and why it is patentable over the applied prior art, and discussed other issues raised in the Office Action. The discussion is summarized and expanded upon below.

The present invention is drawn to a method of producing a catalyst, the catalyst so produced, and a method of producing methacrylic acid by subjecting methacrolein to vapor phase catalytic oxidation with molecular oxygen in the presence of the catalyst. The method of producing the catalyst comprises the mixing of three separate liquids, designated as liquid A, liquid B, and liquid C, each having particular requirements, as recited in Claim 1, wherein the liquid B is mixed with liquid A, liquid C or a mixture of liquid A and liquid C over a period of 0.1 to 15 minutes.

As Applicants' attorney pointed out during the above-referenced interview, Applicants describe in the specification under "Background Art," beginning at page 1, line 11, JP 2000-296336A (Naito et al) as disclosing a method for producing a catalyst for the production of methacrylic acid, wherein the catalyst produced by the method "has an insufficient yield of methacrylic acid in some cases." Applicants further describe in the specification at page 9, beginning at line 16, that in the present invention, the amount of the liquid B is 5 to 300 parts by mass, preferably 10 to 200 parts by mass relative to 100 parts by mass of the liquid A, and that they have found that the time for mixing the liquid B with other liquids has a great influence on the performance of the catalyst to be produced and that a catalyst having a particularly high yield of methacrylic acid can be obtained by specifying the mixing time. Applicants continue that the mixing time "was not at all studied" in Naito et al,

while in the present invention, the time for mixing liquid B with other liquids is 0.1 to 15 minutes.

The significance of the presently-recited mixing time for liquid B is demonstrated by the comparative data in the specification herein, as Applicants' attorney noted during the above-referenced interview, . The data is summarized in Table 1 at page 22 of the specification, a copy of which is **attached herewith**. As shown therein, Comparative Examples 1 and 2 are directly comparable to any of Examples 1-3 and 5, the only difference being the liquid B mixing time. As the data show, the selectivity and yield of methacrylic acid was superior using the present invention.

The above-discussed results could not have been predicted by the applied prior art.

The rejection of Claims 1-15 under 35 U.S.C. § 103(a) as unpatentable over above-discussed Naito et al, is respectfully traversed. (While the Examiner's statement of the rejection refers to a "translation provided by the Examiner," no such translation was provided. Applicants gratefully acknowledge the English machine translation provided by the Examiner during the above-referenced interview.)

Naito et al has been discussed above. As the Examiner recognizes, Naito et al does not disclose the presently-recited respective amounts of liquids A, B and C, nor does Naito et al disclose or suggest anything with regard to a liquid B mixing time, let alone that this mixing time is a result-effective variable. Thus, the Examiner has not shown that the prior art was aware that mixing time is a result-effective variable. Thus, the present claims are patentable under the rationale of *In re Antonie*, 559 F.2d 618, 195 USPQ 6, 8-9 (CCPA 1977) **(copy enclosed)** (exceptions to rule that optimization of a result-effective variable is obvious, such as where the results of optimizing the variable are unexpectedly good or where the variable was not recognized to be result effective). Applicants are entitled to prevail under either of the above exceptions.

For all the above reasons, it is respectfully requested that this rejection be withdrawn.

The rejection of Claims 1-15 under 35 U.S.C. § 103(a) as unpatentable over U.S. 6,458,740 (Kasuga et al), is respectfully traversed. Kasuga et al is drawn to a method for preparing a heteropolyacid catalyst containing a heteropolyacid composed of molybdophosphoric acid and/or molybdovanadophosphoric acid, or a salt of the acid, in the presence of a nitrogen-containing heterocyclic compound, which method comprises preparing an aqueous solution or dispersion which contains the nitrogen-containing heterocyclic compound, nitrate anions and ammonium ions, the ammonium content not exceeding 1.7 mols per mol of the nitrate anion content, and the ammonium ion content not exceeding 10 mols per 12 mols of the molybdenum atom content, by mixing raw materials containing the catalyst-constituting elements with a nitrogen-containing heterocyclic compound in the presence of water, then drying and calcining the same (column 2, lines 4-21).

Kasuga et al neither discloses nor otherwise suggests the presently-claimed invention. Kasuga et al contains no requirement that their catalyst-constituting raw materials be mixed in the form of three liquids, each having particular requirements, let alone that one particular liquid be mixed over a particular period of time. Nor, with regard to the catalyst *per se*, would one skilled in the art, without the present disclosure as a guide, select both (1) copper and (2) potassium, rubidium, or cesium, as the element X in Kasuga et al, and adjust “d” therein to meet the terms of presently-recited “d” and “g” herein. In sum, Kasuga et al is much further away from the presently-claimed invention than Naito et al, which Applicants assert is the closest prior art, and over which Applicants have demonstrated patentability, as discussed above.

For all the above reasons, it is respectfully requested that this rejection be withdrawn.

The rejection of Claims 1-15 under 35 U.S.C. § 112, second paragraph, is respectfully traversed. Indeed, the rejection is now moot in view of the above-discussed amendment.

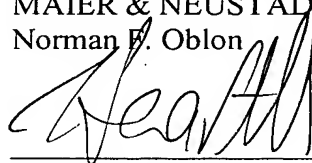
Accordingly, it is respectfully requested that the rejection be withdrawn.

The objection to Claim 1 is now moot in view of the above-discussed amendment. Accordingly, it is respectfully requested that the objection be withdrawn.

All of the presently-pending claims in this application are now believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to pass this application to issue.

Respectfully submitted,

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